

Before the  
Federal Communications Commission  
Washington, DC 20554

In the Matter of	)	
	)	
Business Data Services in an Internet	)	WC Docket No. 16-143
Protocol Environment	)	
	)	
Investigation of Certain Price Cap Local	)	WC Docket No. 15-247
Exchange Carrier Business Data	)	
Services Tariff Pricing Plans	)	
	)	
Special Access Rates for Price Cap	)	WC Docket No. 05-25
Local Exchange Carriers	)	
	)	
AT&T Corp. Petition for Rulemaking to	)	RM-10593
Reform Regulation of Incumbent Local	)	
Exchange Carrier Rates for Interstate	)	
Special Access Services	)	
	)	

REPLY COMMENTS OF TECH KNOWLEDGE

August 9, 2016



Tech Knowledge submits these comments to emphasize a single point: the data does not support arguments that prospective 5G deployments require price regulation of fiber-based wireless backhaul in *any* market.<sup>1</sup>

### Competition broadly exists for fiber-based BDS

First, as the Commission recognized in the FNPRM, “the data and [the agency’s] analysis suggests that ... competition is present in BDS above 50 Mbps in many circumstances.”<sup>2</sup>

Indeed, the Rysman White Paper produced by the Commission “finds little statistical relationship between the presence of local fiber-based competition and lower incumbent LEC prices for BDS above 45 Mbps,”<sup>3</sup> and testimony in the record indicates that “there are more census blocks with fiber from three or more CLECs than there are census blocks identified as having special access demand.”<sup>4</sup> Based on the competitive metric used in the Rysman White Paper and other testimony, the data suggests that “competition broadly exists for [business data] services” above 45 Mbps.<sup>5</sup>

The Commission’s alternative explanations for this observation — that there “was too little competition [above 45 Mbps] to produce material competitive effects” or “there are too little data and/or too many uncontrolled for variables for a statistical relationship to emerge” — are not consistent with the Rysman White Paper’s conclusion that the “data set is truly vast” or the data for DS3 services specifically (which exhibited the largest price variations). In the data set relied on by the Rysman White Paper, the quantity of statistical information for BDS above 45 Mbps (and thus, the

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<sup>1</sup> See Notice of Ex Parte, Competitive Carriers Association, WC Docket No. 16-143, et al. (filed Aug. 5, 2016) [hereinafter “CCA Ex Parte”], available at <https://www.fcc.gov/ecfs/filing/10805969615284/document/1080596961528459f7>.

<sup>2</sup> Business Data Services in an Internet Protocol Environment, FCC 16-54 at ¶ 271 (2016) [hereinafter “FNPRM”], available at [https://apps.fcc.gov/edocs\\_public/attachmatch/FCC-16-54A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/FCC-16-54A1.pdf).

<sup>3</sup> *Id.* at ¶ 244.

<sup>4</sup> Anna-Maria Kovacs, “Business Broadband: Assessing the Case for Reregulation” at p. 9 (Mar. 2016) [hereinafter “Kovacs”] (citing NCTA reply comments, WC Docket 05-25 at p. 15 (Feb. 19, 2016)), available at <http://cbpp.georgetown.edu/sites/cbpp.georgetown.edu/files/Regulation%20in%20Financial%20Transaction%20Business%20Broadband%20Assessing%20the%20Case%20for%20Reregulation%20Kovacs%203.14.16.pdf>.

<sup>5</sup> *Id.*

measured level of competition) exceeded that which was available for DS3 services by 43 percent.<sup>6</sup> Specifically, the Rysman White Paper considered 296,535 data points for BDS above 45 Mbps compared to only 206,945 data points (or “number of observations by product”) for DS3 services.<sup>7</sup> With respect to the possibility of there being “too many uncontrolled for variables,” the Rysman White Paper already controlled “for the effects of unobserved cost, price flex regulation and cable penetration, among other issues, with location fixed effects,”<sup>8</sup> and there is no evidence that there are significantly greater “uncontrolled for variables” affecting BDS above 45 Mbps than DS3 services. Thus, to the extent the Commission believes it should discount or discredit the Rysman White Paper analysis showing that competition broadly exists for BDS above 45 Mbps, it must also discredit its analysis with respect to DS3 services.

### 5G will require deployment of fiber-based backhaul

Second, as pro-regulation commenters admit, 4G already demands Ethernet backhaul connections with capacities exceeding 50 Mbps,<sup>9</sup> and the International Telecommunication Union’s recommendation for the IMT-2020 standard posits peak data rates for 5G backhaul connections of 10-20 Gbps (as in “giga,” not “mega”).<sup>10</sup> Fifth-generation mobile networks will thus be unable to use TDM-based backhaul connections, i.e., 4G networks that still lack fiber (or comparable throughput) connectivity will require upgraded backhaul connections in order to provide 5G services,<sup>11</sup> and

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<sup>6</sup> See *id.* at p. 225.

<sup>7</sup> *Id.* at p. 225, Table 11.

<sup>8</sup> *Id.* at p. 228.

<sup>9</sup> See CCA Ex Parte at p. 2.

<sup>10</sup> Recommendation ITU-R M.2083-0 (Sep. 2015) at p. 14, available at [http://www.itu.int/dms\\_pubrec/itu-r/rec/m/R-REC-M.2083-0-201509-I!!PDF-E.pdf](http://www.itu.int/dms_pubrec/itu-r/rec/m/R-REC-M.2083-0-201509-I!!PDF-E.pdf). See also Use of Spectrum Bands Above 24 GHz For Mobile Radio Services (Spectrum Frontiers), FCC 16-89 at ¶ 9 (2016) (noting the expectation that 5G services will offer high-bandwidth content with speeds in excess of 10 Gbps), available at [http://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2016/db0728/FCC-16-89A1.pdf](http://transition.fcc.gov/Daily_Releases/Daily_Business/2016/db0728/FCC-16-89A1.pdf).

<sup>11</sup> See, e.g., Notice of Ex Parte, Sprint, WC Docket No. 05-25 et al. at p. (filed Sep. 25, 2015) (stating that “every one” of Sprint’s “tens of thousands” of new cell sites will require additional backhaul), available at <https://www.fcc.gov/ecfs/filing/60001300383/document/60001325245>.

those upgraded backhaul connections will fall within the broadly competitive segment of the market for BDS above 45 Mbps.

### Wireless carriers have sufficient scale to provision competitive backhaul service

Third, even assuming fiber-based BDS were not broadly competitive in the *retail* market, the customer group comprised of wireless carriers has sufficient scale and expertise to either self-provision or obtain competitively-priced backhaul service.<sup>12</sup>

For example, according to Dave Mayo, T-Mobile senior vice president of technology strategy, by mid-2012, T-Mobile had already replaced its TDM-based backhaul “with high-speed packet access (HSPA) equipment and fiber Ethernet in approximately 95% of its network” (with fiber backhaul at more than 32,000 cell sites).<sup>13</sup> And according to T-Mobile CFO Braxton Carter, by early 2015, 50,000 of T-Mobile’s 54,000 cell sites (93%) had fiber backhaul connections.<sup>14</sup> It appears T-Mobile relied exclusively on competitive BDS carriers to supply its next generation backhaul connectivity, including Bright House Networks, FPL FiberNet, IP Networks, and Zayo Bandwidth.<sup>15</sup> More importantly, T-Mobile’s investment in fiber backhaul enabled it “to accommodate higher data volumes year-on-year *without* significant increases in network costs.”<sup>16</sup>

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<sup>12</sup> See FNPRM at ¶¶ 199-203 (recognizing potential distinctions among different customer groups).

<sup>13</sup> Steve Fravel, T-Mobile Enhances its Wireless Backhaul, NTCA (Aug. 6, 2012), available at <http://www.ntca.org/new-edge/wireless/t-mobile-enhances-its-wireless-backhaul>.

<sup>14</sup> Phil Goldstein, “T-Mobile’s Carter: We’d be a ‘very interesting’ partner for Dish,” Fierce Wireless (Mar. 5, 2015), available at <http://www.fiercewireless.com/wireless/t-mobile-s-carter-we-d-be-a-very-interesting-partner-for-dish>.

<sup>15</sup> See Press Release, “T-Mobile Signs New Backhaul Agreements for Six Major U.S. Markets,” T-Mobile (Sep. 18, 2008), available at <https://newsroom.t-mobile.com/news-and-blogs/t-mobile-signs-new-backhaul-agreements-for-six-major-us-markets.htm>.

<sup>16</sup> Press Release, “Solid adjusted OIBDA and return to customer growth in Q1,” T-Mobile (May 9, 2012) (emphasis added), available at <https://newsroom.t-mobile.com/news-and-blogs/t-mobile-usa-reports-first-quarter-2012-operating-results.htm>.

In another example, Verizon Wireless relied on Tower Cloud, “a leading provider of broadband transport services in the southeastern United States,” to provide fiber backhaul to its small cell deployment in Atlanta.<sup>17</sup>

Sprint has opted to self-provision its own microwave-based backhaul rather than lease fiber infrastructure from AT&T, Verizon, or other fiber providers,<sup>18</sup> because “putting up a network of high-speed, broadband microwave relay towers is quicker and easier” than laying fiber.<sup>19</sup>

Zayo, a competitive BDS provider that owns and operates a 110,000-mile fiber network in the United States and Europe, recently reported that wireless backhaul is currently driving most of its capital expenditures.<sup>20</sup> According to Zayo’s CEO, Dan Caruso, fiber projects are “pretty competitively bid” — and are indeed so competitive in the small cell market that Zayo has “seen some deals in pricing out there that frankly we scratch our head at” because “there’s probably going to be a few people who lose a lot of money” by pricing so low.<sup>21</sup>

Competitive fiber providers have strong incentives to build backhaul because they view wireless customers as “anchor tenants” that enable them to serve additional enterprise customers. For example, Tower Cloud’s CEO, Ron Mudry, told Fierce Telecom that when it built 25,350 fiber miles to satisfy a new backhaul contract with one of the top 4 wireless operators serving the Augusta, Georgia area, Tower Cloud incorporate “onramps” in its network design to serve local businesses

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<sup>17</sup> Press Release, “Verizon Wireless Selects Tower Cloud to Connect New Small Cell Deployment at Atlanta’s Centennial Olympic Park,” Tower Cloud (Sep. 9, 2014), available at <http://towercloud.com/verizon-wireless-selects-tower-cloud-to-connect-new-small-cell-deployment-at-atlantas-centennial-olympic-park/>.

<sup>18</sup> See Dawn Chmielewski and Ina Fried, “Sprint Finalizes Plan to Trim Network Costs by Up to \$1 Billion,” Re/code (Jan. 15, 2016), available at <http://www.recode.net/2016/1/15/11588832/sprint-finalizes-plan-to-trim-network-costs-by-up-to-1-billion>.

<sup>19</sup> Aviat Networks, “Sprint Opts for Microwave Radio over Fiber for Backhaul” (Mar. 14, 2016), available at <https://blog.aviatnetworks.com/2016/03/14/sprint-opts-for-microwave-radio-over-fiber-for-backhaul/>.

<sup>20</sup> See “Zayo Group Holdings (ZAYO) Dan P. Caruso on Q3 2016 Results - Earnings Call Transcript,” Seeking Alpha (May 6, 2016), available at <http://seekingalpha.com/article/3972179-zayo-group-holdings-zayo-dan-p-caruso-q3-2016-results-earnings-call-transcript?part=single>.

<sup>21</sup> *Id.*

as well.<sup>22</sup> Mudry noted that when Tower Cloud builds to a macro cell site on a building's roof, it also enables service to nearby small cell networks and to tenants inside the building: "You could get three different customer segments from a single build."<sup>23</sup>

With respect to the market for new fiber backhaul services, competitive fiber providers typically have advantages over ILECs, who are required to sustain a ubiquitous copper network that is "serving roughly a third of the lines for which it was engineered."<sup>24</sup> Competitive fiber providers are in a unique position to optimize their new fiber builds for specific backhaul contracts while giving themselves the future flexibility to serve only the most profitable enterprise customers along their routes.

The investment incentives of competitive fiber providers and the proven ability of carriers like T-Mobile to deploy fiber backhaul to the vast majority of their cell sites without significant increases in networks costs show that wireless carriers are able to provision competitively priced backhaul services with capacities exceeding 45 Mbps. In terms of the Commission's geographic market analysis, "suppliers were generally willing to extend their networks to meet [T-Mobile's and other carriers'] demand" for fiber backhaul at reasonable prices, which in turn "place[s] a degree of competitive pressure on the prices [other wireless and nearby enterprise] customers would face."<sup>25</sup>

### Regulating rates for fiber backhaul would harm competitive 5G deployment

Finally, regulating rates for fiber backhaul would harm competition among fiber-based backhaul providers and wireless carriers. The empirical evidence of T-Mobile's and other carriers' fiber deployments demonstrate that market forces provide sufficient incentives for competitive fiber providers to meet demand for 5G backhaul. If the FCC were to impose a price cap on fiber-based

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<sup>22</sup> See Sean Buckley, "Tower Cloud's Mudry: Wireless backhaul deals are creating new enterprise service opportunities," Fierce Telecom (Nov. 23, 2015), available at <http://www.fiercetelecom.com/telecom/tower-cloud-s-mudry-wireless-backhaul-deals-are-creating-new-enterprise-service>.

<sup>23</sup> *Id.*

<sup>24</sup> Kovacs at p. 25.

<sup>25</sup> FNPRM at ¶ 207.

BDS, however, it would reduce incentives for competitive fiber providers to bid for 5G backhaul contracts. And, if price cap regulation were combined with a mandate that ILECs provide fiber backhaul at price capped rates as carriers of last resort in particular markets, these disincentives for investment by competitive fiber providers would likely result in ILECs becoming the *only* option for 5G backhaul in those markets. The FCC's predictions regarding fiber-based BDS competition would thus become a self-fulfilling prophecy.

In addition to harming the ability of competitive fiber providers to compete for 5G backhaul in these markets, this foreseeable regulatory outcome would make wireless carriers dependent on ILECs for 5G backhaul and, in turn, the effectiveness of FCC regulatory oversight. This is particularly undesirable here, because some of the same BDS providers on whom wireless carriers would likely be forced to rely (e.g., AT&T and Verizon) are also wireless carriers.

## Conclusion

The evidence in the Rysman White Paper that competition broadly exists for fiber BDS coupled with the empirical evidence offered by fiber backhaul deployments indicates that wireless carriers can obtain competitively-priced backhaul for 5G without FCC regulation. Permitting market forces to govern the deployment of 5G backhaul would enhance competition among fiber providers and wireless carriers alike. In these circumstances, it would be wiser for the Commission to take a wait-and-see approach rather than attempt to make a prediction that is likely to undermine the agency's competitive goals.

Respectfully submitted,

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By: /s/ FBCJR

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